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CLAIMS:

1. A method of transforming a carnation (*Dianthus L.*) plant genome with a DNA molecule comprising:
 - (a) preparing stem explants from carnation cuttings;
 - 5 (b) wounding the explants by microprojectile bombardment;
 - (c) cocultivating said wounded explants with *Agrobacterium* comprising said DNA molecule under conditions of exposure to dark followed by light;
 - 10 (d) excising shoots from said cultivated wounded explants and removing the leaves from said shoots; and
 - (e) culturing said leaves to obtain transgenic shoots transformed with said DNA molecule.
2. A method according to Claim 1 wherein said conditions of dark followed by light comprise 2-4 days in the dark followed by 1-4 days in the light.
- 15 3. A method according to Claim 1 wherein said carnation cuttings are stem cuttings with four to ten fully mature leaves.
4. A method according to Claim 3 wherein leaves and shoot apices are removed from said stem cuttings and two to five primary nodes are isolated.
5. A method according to Claim 1 wherein said microprojectile bombardment
20 comprises accelerating tungsten particles at said stem explants.
6. A method according to Claim 5 wherein said tungsten particles are accelerated at a pressure of 1300-2000 psi and at a distance of 3-12 cm from said explants.
7. A method according to Claim 1 wherein said wounded explants are
25 cocultivated with *Agrobacterium* in a medium supplemented by α -naphthalene acetic acid (NAA) and 1-phenyl-3(1,2,3-thiadiazol-5-yl)-urea (TDZ).
8. A method according to Claim 1 wherein the leaves of said excised shoots are cultured in a medium supplemented by NAA and 6-benzylaminopurine (BAP).
9. A transgenic carnation plant obtained by the method of Claim 1.

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10. A transgenic carnation plant according to Claim 9 wherein said DNA molecule is the *Agrobacterium rhizogenes rolC* gene.
11. A plant according to Claim 10 wherein said *rolC* gene is under the control of a cauliflower mosaic virus (CaMV) 35S promoter.
- 5 12. A transgenic carnation plant transformed with the *Agrobacterium rhizogenes rolC* gene.
13. A transgenic carnation plant transformed with a DNA molecule comprising the sequence of Fig. 6.
14. A transgenic carnation plant according to Claim 9 wherein expression of
10 the flavanone 3-hydroxylase (*fht*) gene is blocked.
15. A plant according to Claim 14 wherein the expression of the *fht* gene is blocked by an antisense molecule.
16. A plant according to Claim 15 wherein said antisense molecule comprises the whole or a fragment of the *fht* gene in antisense orientation.
- 15 17. A plant according to Claim 16 wherein said antisense molecule comprises the sequence of Fig. 13.
18. A transgenic carnation plant wherein expression of the flavanone 3-hydroxylase (*fht*) gene is blocked.
19. A transgenic carnation plant transformed with a DNA molecule comprising
20 the sequence of Fig. 13.
20. A DNA sequence of Fig. 13.
21. A method for controlling the fragrance of a plant comprising modulating gene expression in the anthocyanin-biosynthetic pathway of said plant.
22. A method according to Claim 21 where said plant is a carnation.
- 25 23. A method according to Claim 21 wherein said modulation comprises suppressing the expression of one or more genes in said pathway.
24. A method according to Claim 23 wherein said modulation comprises suppressing the expression of the *fht* gene.
25. A method according to Claim 24 wherein expression of the *fht* gene is
30 suppressed by an antisense molecule.

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26. A transgenic plant wherein the fragrance of said plant has been changed by modulating gene expression in the anthocyanin-biosynthetic pathway of said plant.
27. A method for controlling the color of a plant comprising modulating gene expression in the anthocyanin-biosynthetic pathway of said plant.
- 5 28. A method according to Claim 27 wherein said plant is a carnation.

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